Has increased provision of treatment reduced the prevalence of common mental disorders? Review of the evidence from four countries

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Many people identified as having common mental disorders in community surveys do not receive treatment. Modelling has suggested that closing this "treatment gap" should reduce the population prevalence of those disorders. To evaluate the effects of reducing the treatment gap in industrialized countries, data from 1990 to 2015 were reviewed from four English-speaking countries: Australia, Canada, England and the US. These data show that the prevalence of mood and anxiety disorders and symptoms has not decreased, despite substantial increases in the provision of treatment, particularly antidepressants. Several hypotheses for this lack of improvement were considered. There was no support for the hypothesis that reductions in prevalence due to treatment have been masked by increases in risk factors. However, there was little evidence relevant to the hypothesis that improvements have been masked by increased reporting of symptoms because of greater public awareness of common mental disorders or willingness to disclose. A more strongly supported hypothesis for the lack of improvement is that much of the treatment provided does not meet the minimal standards of clinical practice guidelines and is not targeted optimally to those in greatest need. Lack of attention to prevention of common mental disorders may also be a factor. Reducing the prevalence of common mental disorders remains an unsolved challenge for health systems globally, which may require greater attention to the "quality gap" and "prevention gap". There is also a need for nations to monitor outcomes by using standardized measures of service provision and mental disorders over time.

Key words: Common mental disorders, depression, anxiety disorders, prevalence, antidepressants, psychological therapies, treatment gap, quality of treatment, prevention

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National surveys in a range of countries have found that mental disorders are common and are a major source of disability[1]. However, many cases are untreated, even among people with the most serious disorders. In industrialized countries, 36-50% of serious cases are untreated in the previous year, whereas in developing countries the situation is even worse, with 76-86% untreated. It has been proposed that treatment services need to be expanded to reduce the prevalence and impact of mental disorders[2].

The "treatment gap" is of such concern that the 2001 World Health Report made ten recommendations for addressing it, including making mental health treatment more accessible in primary care, making psychotropic drugs more available, and increasing the training of mental health professionals[3]. Simulation data suggested that extending the provision of evidence-based treatment would reduce the population burden of mental disorders[4] and provide an economic return on investment[5].

The aim of the present paper is to review evidence from four industrialized English-speaking countries – Australia, Canada, England (most of the UK population) and the US – on whether increases in treatment provision have been associated with a reduction in prevalence of common mental disorders. These countries were chosen because they have the necessary data, have mental health systems familiar to the authors, and provide a suitable test of whether increasing services improves population mental health.

The focus is on mood and anxiety disorders in adults, which are the major source of disease burden from mental disorders. Both diagnostic measures and symptom scale data were reviewed. While both lay diagnostic interviews and self-report symptom scales are imperfect measures of these mental disorders, consistency of findings across assessment methods supports conclusions about whether any changes have occurred.

Papers were identified by a search in PubMed for studies published from 1990 to 2015 using the terms: (Australia OR Canada OR "Great Britain" OR England OR "United Kingdom" OR "United States") AND ("stress, psychological" OR depression OR "depressive disorder" OR anxiety OR "anxiety disorder") AND (epidemiology OR therapeutics) AND trends.

Papers were considered relevant if they covered time trends in prevalence or treatment and were based on assessments at more than one time point. Studies based on analyses of lifetime reports from different cohorts in the same survey were not considered. Reports selected were supplemented by manual search of references of the retrieved articles and the authors' knowledge of any grey literature from their respective countries.

AUSTRALIA

Changes in treatment

In Australia there has been an overall substantial growth in the resources allocated to mental health care, with total

government expenditure increasing by 178% in real terms between 1992-1993 and 2010-2011[6]. This change in expenditure has been accompanied by a 35% increase in the *per capita* mental health workforce employed by the states and territories.

Antidepressant use showed a 352% increase (in terms of daily doses per 1,000 people per day) from 1990 to 2002, mainly associated with the introduction of selective serotonin reuptake inhibitors (SSRIs)[7]. This trend continued in the 2000s, with a 95% increase from 2000 to 2011[8]. By 2011, Australia had the second highest consumption of antidepressants among 23 countries which are part of the Organization for Economic Co-operation and Development (OECD)[9].

The availability of psychological therapies increased in 2001 and then further in 2006 with the introduction of new funding arrangements. These programmes provided subsidies for evidence-based psychological services, mainly delivered by psychologists, leading to a rapid uptake of psychological treatments. It has been estimated that the 12-month treatment rate for mental disorders increased from 37% in 2006-2007 to 46% in 2009-2010[10]. Australia has also seen rapid growth in the availability of e-therapy since 2002[11].

Changes in prevalence

Australia had national mental health surveys in 1997 and 2007, both using the Composite International Diagnostic Interview (CIDI). Direct comparison of prevalences is difficult because of differences in methodology. However, no reduction in prevalence was observed, with 18% having an anxiety, affective or substance use disorder in 1997 compared to 20% in 2007[6].

Other relevant data come from national surveys that used symptom scales. A comparison of surveys in 1995, 2003-2004 and 2011, using the 4NS scale, found no change[12]. Comparison of the Kessler Psychological Distress Scale (K10) data in the 1997 and 2007 national mental health surveys showed an increase in anxiety symptoms, but no change in depressive symptoms[13]. Another national health survey series showed no change in the K10 data between 2001, 2004-2005 and 2007-2008[14]. There are also relevant time series data from a health survey in the state of South Australia, which compared the prevalence of major depression according to the Patient Health Questionnaire in 1998, 2004 and 2008, and found a significant increase from 7% to 10%[15].

Conclusion on Australia

Australia has had increasing resources allocated to mental health care, with an increased mental health workforce, increased use of antidepressants and, more recently, increased provision of psychological therapies, including e-therapy. However, there is no evidence for any reduction in prevalence of disorders or reduction in symptoms. If anything, trends are in the opposite direction.

CANADA

Changes in treatment

In Canada, several national surveys have collected data on self-reported current (past 2-day) antidepressant use. A meta-regression analysis of survey data collected between 1994 and 2012 identified substantial increases, more than three-fold, in the 1990s, but no change between 2002 and 2012[16]. By 2011, Canada ranked third among OECD countries (behind Australia and Iceland) in antidepressant consumption[9].

Another indicator of access to clinical care is the proportion of people reporting that they have been professionally diagnosed with a mood or anxiety disorder. This was assessed in three national surveys between 2003 and 2007, increasing both in men and women in each year[17]. This trend has continued up to 2014, with the percentage reporting that they had been diagnosed with a mood or anxiety disorder increasing from 5.1% in 2003 to 7.5% in 2013[18].

Due to lack of detailed data, it is not possible to estimate the frequency of participation in evidence-based psychotherapies for common mental disorders in Canada. However, the proportion of respondents with past-year major depression who reported six or more visits to a health professional for mental health reasons (a pattern that is at least consistent with receipt of an evidence-based psychotherapy) increased from 27.6% to 39.5% between 2002 and 2012[19]. When antidepressant use was included in this definition, 52.2% of respondents received potentially adequate treatment in 2012, up from 41.3% in 2002.

Changes in prevalence

A brief lay-administered interview for major depressive episodes has been consistently included in large, representative national health surveys conducted in Canada over the past 20 years. Also, two national mental health surveys, in 2002 and 2012, used a Canadian adaptation of the CIDI. A recently reported meta-regression analysis that examined estimates from this data library (consisting of eleven national surveys) found no change in prevalence between 1994 and 2012, the slope of the meta-regression line over time being nearly exactly zero[20].

While Canadian prevalence data are most readily available for major depressive episodes, the same data sources have often included the K6 scale (an abbreviated version of the K10) for non-specific distress[21]. This scale may provide broader coverage of common disorders in community populations. There was no evidence of change over time either in the prevalence of elevated distress or in mean distress ratings[17].

Conclusion on Canada

In Canada, there is evidence of increasing access to clinical care and treatment with antidepressant medications. Despite this change, there is no evidence that the prevalence of common

mental disorders, as reflected by the past-year occurrence of major depressive episodes or by non-specific distress ratings, has diminished over time.

ENGLAND

The UK has since 1948 provided universal health care free at the point of need, funded through central taxation, which provides an interesting opportunity to study the effects of health care unencumbered by the barrier of cost.

In the British National Psychiatric Morbidity Survey (NPMS) programme, adults living in private households were recruited using population-based multi-phase probability sampling, and evaluated by lay interviewers. While improvements were made in successive surveys, the emphasis was on using identical instruments wherever possible. In consequence, rates of mental disorders, health service use and treatment delivery at different time points over a 15 year period can be directly compared. Most data are available for England, which includes the vast majority of people living in the UK. As the 2007 survey covered only England, current analyses are restricted to the English population in all the surveys.

Changes in treatment

Data on trends in treatment over time have been collected by the NPMS in 1993, 2000 and 2007, using standardized and essentially unchanged methods[22-26]. The surveys asked respondents directly about using treatments and consulting with professionals for a mental health problem over specific time periods.

There was little change in primary care physician contact for a psychological problem over the period from 1993 to 2007[27]. However, the receipt of antidepressants increased significantly, nearly trebling between 1993 and 2000[28], following which there was no further increase between 2000 and 2007[27]. Increasing hypnotic use[29] and antidepressant prescribing[30] has also been reported. There was limited evidence of an increase in talking treatments between 1993 and 2007.

Changes in prevalence

Recent analyses of the NPMS found no clear secular trend in the prevalence of common mental disorders in general or in depressive episodes in particular between 1993 and 2007[31]. The prevalence of common mental disorders was 10.9% in men and 18.1% in women in 1993, while it was 11.8% and 18.9%, respectively, in 2007.

Conclusion on England

England has had an increasing use of antidepressants, hypnotics and possibly talking treatments since 1993. However, there is no evidence for any decrease in prevalence of disorders or reduction of symptoms in adulthood. If anything, trends are in the opposite direction.

UNITED STATES

Changes in treatment

A 2001 study by Zuvekas[32] compared data from the 1987 National Medical Expenditure Survey (NMES) and its successor, the 1996 Medical Expenditure Panel Survey (MEPS) – two representative general population surveys. The prevalence of any mental health treatment use increased from 6.9% to 8.5% (a 23.3% increase). The increase in use of psychiatric medications was much larger: from 3.4% to 5.6% (a 63.4% increase). The total number of ambulatory visits increased by 29.2% in this period, whereas the population only increased by 12.3%.

A 2005 study covered a more recent time period and recorded a larger increase by comparing 1990-1992 data from the National Comorbidity Survey (NCS) and 2001-2003 data from the National Comorbidity Survey - Replication (NCS-R)[33]. The increase in overall prevalence of treatment in adults aged 18-54 was over 65% (from 12.2% in 1990-1992 to 20.1% in 2001-2003). The relative increase was similar when the sample was limited to individuals who met the criteria for a DSM-IV mental disorder based on a structured interview: from 20.3% to 32.9%.

Other studies have examined trends in use of treatments for specific conditions (such as depression[34,35] and anxiety disorders[36]) or specific types of treatments (such as antidepressants[37,38] and psychotherapy[39]).

Two studies based on 1987 data from NMES and 1997, 1998 and 2007 data from MEPS recorded a significant increase in treatment for depression over the 1987 to 2007 period[35,39]. The increase was more marked in the 1987-1997 period (220% increase, from 0.73% to 2.33%) than the 1998-2007 period (22% increase, from 2.37% to 2.88%).

Marked growth in antidepressant medication treatment appears to have been the major driver of the increase in depression treatment in the earlier period: 74.5% of those who received treatment for depression in 1997 were treated with antidepressants, compared to 37.3% in 1987. In contrast, the use of psychotherapy for treatment of depression declined from 71.1% to 60.2%[36]. Antidepressants remained the major form of treatment in the later period, with 80.1% of individuals treated for depression in 1998 and 81.9% in 2007 receiving these treatments. The downward trend in the use of psychotherapy in treatment of depression also continued in the later period, going from 53.6% of those treated for depression in 1998 to 43.1% in 2007[39].

Similar patterns of increased prevalence of treatment, increased use of antidepressants and decreased use of psychotherapy were observed for anxiety disorders[36].

Changes in prevalence

Few studies have examined trends in prevalence of common mental disorders in the US, mainly because assessments and diagnostic criteria used in mental health surveys of general population have changed over the years, making comparisons difficult if not impossible. Yet, there is no evidence from available studies that the prevalence of these disorders has declined over the past two or three decades[33,40].

Indeed, one study based on two large national surveys found a more than two-fold increase in the prevalence of major depressive episodes between 1991 and 2002[41]. Another study based on consecutive waves of National Health and Nutrition Examination Survey (NHANES) also found increases in depressive symptoms over the 2005-2010 period[42]. Other studies based on 1991-1992 NCS and 2001-2003 NCS-R data found essentially similar prevalence estimates of major depression and other common mental disorders in this period[33,40]. A more recent study did not find evidence of any significant decrease in 12-month prevalence of major depressive episodes or psychological distress in the years since 2001[43].

Conclusion on the United States

Virtually all studies that have examined trends in use of mental health treatments in the US have recorded an increasing trend since early 1990s. The increase was sharpest between early 1990s and early 2000s and more marked for antidepressant medication treatment, especially SSRIs.

However, there is no evidence for any corresponding reduction in prevalence of mental disorders or psychological distress among US adults in this same period. Some evidence even points to possible increases in prevalence of depression and in disability due to mental health problems[44].

HAS A REDUCTION IN PREVALENCE BEEN MASKED?

We now consider the possibility that treatment has really had a population impact, but this effect is difficult to detect. Two hypotheses are considered: masking by changes in risk factors and masking by increased awareness or willingness to report symptoms.

Masking by changes in risk factors

It is possible that there has been an increase in exposure to risk factors that has masked any decrease in prevalence of common mental disorders due to increased treatment.

Australia

Australia has been affected by a number of natural disasters over the period, particularly drought, floods and fires, but these have been regional and time limited and unlikely to have had a national impact. There have been no major economic changes that could plausibly drive prevalence up. The global financial crisis, for example, has had a limited impact on Australia. Comparison of exposure to specific traumatic events in 1997 and 2007 showed no change[45].

Changes in physical health are also unlikely to have masked changes in mental health. Physical health has overall improved, with increased life expectancy, more years free of disability and slightly improved self-rated health[46]. However, some health problems, in particular obesity and diabetes, have increased.

Canada

During the past two decades, parts of Canada have been affected by natural disasters such as ice storms, forest fires and floods. However, these have been regional events. There were no natural disasters affecting the national population. The global financial crisis has had a relatively limited impact in Canada.

England

In common with many high-income economies, the UK experienced a major recession beginning in 2007. Cuts in most public services (but not in health care) began in 2010 and continue. Unemployment rates rose, but have declined since. The most recent comparable data from the NPMS were collected in 2007. Further data will be available in 2016 (following a period of slight economic growth).

No major disasters, conflicts or other changes have occurred throughout England that could plausibly drive prevalence up since the NPMS data collection began in 1993.

United States

The US population has experienced a number of major social and economic stressors over the past two decades, ranging from terrorist attacks to economic recession and hurricanes, impacting large portions of the population. Although the short-term mental health impact of these events on specific population groups or specific outcomes has been studied[47-49], their overall and long-term impact on the prevalence of mental disorders and psychological distress is not clear.

A study covering the periods before and after the 2008 economic downturn did not detect any clear effects on mental health of the US population[43]. There is also little evidence that the physical health of the US adults has declined over this period, as evidenced by a decrease in all-cause mortality across virtually all age groups[50].

Masking by increased awareness or reporting of symptoms

The measures used to monitor prevalence involve self-report of symptoms or lay diagnostic interviews. If public

awareness of common mental disorders or willingness to disclose symptoms increased over time, this might lead to an artefactual increase in reporting.

Australia

There is evidence that Australians have become more open about mental health problems. Between 1995 and 2011, there was an increase in the percentage of adults who reported having had a problem similar to a depressed person described in a vignette[51]. There was also an increase in the percentage who reported knowing a family member or friend who had a similar problem.

Associated with this increase, Australian adults have shown improvements in the ability to give psychiatric labels to vignettes[52] and a reduction in the belief that depression is due to weakness of character[53]. While there is no evidence linking these changes to prevalence rates, it is possible that the public has become more willing to report symptoms.

Canada

While studies of mental health literacy[2] and perceived stigma[54] have been conducted in Canada, repeated measurements over time have not been made. Therefore, temporal trends cannot be evaluated.

While there have been no changes in symptom-based measures of mental health, there has been a slight increase in the proportion of Canadians reporting that their mental health is merely fair or poor[55]. If this trend reflects an increasing willingness to disclose mental health concerns, then the sensitivity of instruments such as structured diagnostic interviews or the K6 scale may be increasing over time, which would lead to larger prevalence estimates. Speculatively, such an effect could offset gains that might otherwise result from better delivery of treatment.

England

Response rates for the household NPMS were 79% in 1993, 69% in 2000, and 57% in 2007, which is in line with international trends. The paper-and-pencil questionnaires used in 1993 were replaced by computer assisted interviewing in subsequent surveys; this is not thought to affect the results substantially[56]. Willingness to report symptoms has not been specifically assessed in the UK survey programme. The absence of significant change in responses to identically worded questions on symptoms argues against such a change.

The increased use of treatments by men between 1993 and 2000 might suggest some change in attitudes or self-perception, but no further such change was seen between 2000 and 2007. There has been an increased focus in other research on examining the effects of stigma, for example on the under-use of treatments[57], which has not yielded information on trends over time.

United States

Little research has focused on any possible changes in Americans' willingness to disclose mental health problems. One study, recording increased reports of "impending nervous breakdown" among the US general population between 1957 and 1996, concluded that the change could be due either to an increase in psychological problems, or a decrease in the stigma associated with admitting that one is going to have a nervous breakdown, or both[58]. Other studies indicate that younger adults were more willing to disclose mental health problems and to seek professional help in more recent years[59]. Yet, it remains unclear whether people who participated in more recent surveys were more likely than those who participated in earlier years to identify their psychological distress as indicative of a mental health problem.

A recent study found that middle-aged and older Americans tend to rate themselves and cases presented in standard vignettes as more depressed than their European counterparts[60]. When the self-ratings were adjusted for vignette ratings, American participants were not more depressed than the Europeans. While this finding highlights the importance of expectations and norms in labeling one's mental status, it is not clear if the expectations and norms of American adults regarding their mental health have changed over time.

WHY HAS PREVALENCE NOT DECREASED?

Given that prevalence has not shown the expected decrease, we next discuss possible reasons. Two possibilities are examined: that the quality of treatment is too poor to affect prevalence or is too poorly targeted, and that too little has been done to reduce incidence through prevention.

Is treatment of poor quality or poorly targeted?

Australia

In Australia, there is evidence that treatments provided are often not consistent with clinical practice guidelines. It has been estimated that 39% of cases of mood or anxiety disorders sought professional help, 26% received an evidence-based intervention, and 16% received minimally adequate treatment[61]. There is also evidence that only 50% of people prescribed antidepressants receive them for at least six months as recommended in clinical guidelines[62]. Similarly, while the perceived needs of service users were better met in 2007 than in 1997, most of the gains were in partially met rather than fully met needs, suggesting that quality of services may still be lacking[63].

There have been specific questions raised about the use of antidepressants. It has been noted that the age distribution of antidepressant use aligns poorly with the age distribution of

mood and anxiety disorders, with antidepressants more likely to be prescribed to older people, among whom prevalence is lower[64]. There are also data showing that general practitioners, who are the major prescribers, use antidepressants to treat "chronic mild depression", whereas the evidence indicates that these drugs are more appropriate for severe disorders[65]. The use of antidepressants for milder cases is also inconsistent with clinical guidelines that recommend psychological therapies as the first line of treatment[61].

Canada

A survey conducted in the province of Alberta in 2005 and 2006 found that only 40.5% of those with major depression were taking an antidepressant. The frequency was 28.5% in those with anxiety disorders. Among those with major depression, only 14.3% reported receiving psychotherapy as a treatment[66].

In the Alberta survey, 67.2% of those who reported taking antidepressants had no active mood or anxiety disorder diagnosis at the time of the survey. However, some of these respondents may have had successful outcomes, such that they no longer met diagnostic criteria at the time of the interview. They may have been taking medications to safeguard a remission rather than for acute treatment. In this particular survey, 81% of those taking antidepressants reported doing so for more than one year.

In the most recent national mental health survey (which was conducted in 2012), 85% of respondents with past year major depressive episodes reported a perceived need for mental health care, 63% reported that they had actually seen a health professional about their mental health and only 58% of these reported that their health care needs were completely met[67]. These results suggest that there is much progress to be made in the timeliness and quality of treatment, factors that affect the impact of treatment on population health.

England

Adherence to guidelines has not been a specific focus of the UK survey programme, in part because surveys do not provide an opportunity to evaluate practice at a sufficiently detailed level. Furthermore, guidelines are updated periodically, making checks on adherence over time more problematic. Thresholds for diagnosis by primary care physicians have become progressively lower[22], but whether this is a good development depends on how such cases are managed. Two studies showing trends in primary care physician assessments away from diagnosis of depression and of anxiety disorder towards diagnosing symptoms of depression and of anxiety could reflect reduced quality of care, possibly related to increased demand pressures on physicians[68,69].

Note has been taken of the increasing use of antidepressants by adults not currently depressed[28], but this could indicate either inappropriate over-diagnosis and over-prescribing or it could be a positive indicator that antidepressant treatments are not being withdrawn too quickly following remission.

United States

A large and growing body of evidence points to the poor quality of mental health treatments as offered in usual care settings in the US[70-78]. Many patients who start treatment for common mental disorders drop out before they could experience the full benefit of treatment[73]. Indeed, prevalence of "minimally adequate" treatment is often much lower than the prevalence of treatment contacts overall. In one study, less than 40% of the participants who reported having received any mental health treatment for a serious mental illness were rated as having received minimally adequate treatment[75]. This means that the current prevalence estimates of mental health treatments based on population surveys greatly exaggerate the prevalence of *effective* treatments received.

While there is little data on trends in quality of mental health treatments nationally, there is some evidence that the mix and nature of treatments has changed over time[34-36]. For example, over the 1987 to 2007 period, the proportion of patients treated for depression who received any psychotherapy or psychotherapy in conjunction with medication treatment declined greatly[35,39].

Furthermore, a large number of people who do not clearly meet the diagnostic criteria for a mental disorder routinely use mental health treatments in the US. Between 1990 and 2003, the increase in the prevalence of treatments in the past year was slightly larger among adults who did not meet the criteria for any 12-month mental disorder than those who met these criteria (65% vs. 62%)[33].

Other data indicate that, among adults treated with antidepressants, the proportion of those who met the criteria for a 12-month mental illness declined during the 1990s and later years[79,80]. Of course, many of those who did not meet the criteria for mental disorder in the past 12 months had met the criteria before that time and were in remission or in partial remission[81]. Treatment may be clinically justified in this group to prevent relapse. Others may be suffering from subthreshold symptoms or mild disorders, and treatments may reduce the risk of future severe illness or chronicity[40].

Is more emphasis needed on prevention?

Prevalence is a function of incidence and duration, with treatment services primarily focused on reducing duration[82]. It is possible that reducing prevalence requires greater emphasis on reduction of incidence through prevention approaches.

Australia

While difficult to quantify, the resources allocated to prevention have been very small compared to those for treatment[83].

The 2014 National Review of Mental Health Programmes and Services recommended greater emphasis on prevention, but this remains to be implemented[84].

Canada

Canada's first national mental health strategy was published in 2012 and referred prominently to mental health promotion and prevention as key actions[85]. In particular, school-based programmes were emphasized, drawing upon the observation that common mental disorders often manifest for the first time during childhood. However, implementation of preventive interventions has not been documented either in terms of its extent or effectiveness.

England

Evidence-based depression prevention programmes for adults are not funded in the UK. Responsibility and a small budget for what is termed mental health promotion has now been transferred from national to local government. Funding targeted on the research priority of prevention of mental disorders has only just begun in 2015, with non-health care settings being the preferred location for proposed studies.

Sure Start Centres to support disadvantaged young families were established from 1997 onwards, but are now gradually losing funding. It is too soon to be able to say what, if any, long-term benefits might accrue for conditions like depression that mainly begin to become common from puberty onwards.

United States

A 2009 report by the US Institute of Medicine called on the nation to make prevention of mental and behavioural disorders a priority[86].

While various agencies across the country have implemented programmes aimed at prevention of mental and behavioural health problems, including school and college programmes sponsored by the Substance Abuse and Mental Health Services Administration[87], these efforts remain disjointed and do not amount to a national strategy.

CONCLUSIONS

Common mental disorders remain a major source of disability globally. According to the Global Burden of Disease 2013 study, major depression ranks second and anxiety disorders rank ninth[88] among all non-communicable diseases. This disability burden did not change substantially over the period 1990-2013, with age-standardized years lived with disability estimated to have increased by 4.7% (95% uncertainty: 2.7 to 6.7) for major depression and to have decreased by 0.2% (95% uncertainty: −1.6 to 1.3) for anxiety disorders. Similarly, age-standardized prevalence was estimated to have increased by 4.2% (95% uncertainty: 2.4 to 6.2) for major depression and to have decreased by 0.5% (95% uncertainty: −1.7 to 0.8) for anxiety disorders[88], consistent with a meta-analysis of prevalence studies over the period[89].

The four countries examined here provide a test of the capacity of current treatment approaches to reduce prevalence of common mental disorders. All four countries have had increases in rates of treatment for these disorders since the 1990s. This has been consistently seen for use of antidepressants, with large increases in all countries. For psychological therapies, there has been more variability, with increases in Australia and possibly England, decreases in the US and no evidence available in Canada. Despite these changes, none of the four countries had any evidence for a reduction in prevalence of disorders or symptoms over the period. If anything, there were indications of changes in the opposite direction in Australia, England and the US.

In pointing out that there have not been population mental health gains, we are not suggesting that pharmacological and psychological treatments for common mental disorders do not work. There is abundant evidence from systematic reviews of randomized controlled trials that they do. Rather, this review indicates that there may have been problems of implementation or other factors that may have counteracted their impact. Furthermore, this review is concerned with the situation in high-income countries. We do not know what the impact of increasing availability of treatment would be in low- and middle-income countries.

Considering the various hypotheses to account for a lack of improvement, we found no support for a masking of a decrease in prevalence due to treatment by an increased exposure to risk factors. We also examined the hypothesis that people have become more aware of common mental disorders or willing to report symptoms in surveys, but found little relevant evidence. This is an area that requires further work, perhaps using clinician-based measures or psychometric techniques for assessing item and test bias.

We considered two possible explanations for a real lack of improvement. Firstly, we examined whether treatment might be of poor quality or might not be well targeted. In Australia, Canada and the US, there was evidence that treatment was frequently not of an adequate standard, as indicated by short duration and continuing unmet need. England lacked relevant data. There were also data from Australia, England and the US that treatment is often received by people who do not meet criteria for a diagnosis, although in some cases this may be appropriate, for example to prevent relapse.

Secondly, we examined whether there has been too little emphasis on reducing incidence through prevention. There is evidence from randomized controlled trials that psychological interventions can have preventive effects in both young people and adults[90,91], and that these can be cost-effective[92]. There is also considerable potential for prevention through risk factor modification, including parenting behaviours, school environments, workplace conditions, diet and lifestyle behaviours[93]. Social

determinants such as poverty and unemployment are also important for mental health[94]. In all four countries, prevention is receiving piecemeal efforts, with no country having a coordinated national approach, despite calls to do so in several of them.

Despite the remarkable consistency in trends across the four countries, there are a number of limitations in the available data that need to be considered. Survey methodologies, diagnostic criteria and response rates have varied over time within countries, limiting the comparisons that can be made. The data available come from lay diagnostic interviews or self-report symptom questionnaires rather than the gold standard of standardized clinical instruments. There are also limited data available on some issues, including whether there have been changes in awareness of common mental disorders or willingness to report symptoms in surveys in all four countries, use of psychological therapies in Canada, and quality of treatment in England. Furthermore, the timing of data points for changes in services does not always match that for changes in prevalence (e.g., the largest increases in use of psychological therapies in Australia have occurred after the most recent national survey of prevalence).

Efforts to reduce the burden of disease due to common mental disorders have emphasized the importance of reducing the "treatment gap". Modelling of the impact of reducing this gap indicated that this approach would produce measurable reductions in disease[4]. However, it now appears that this modelling was optimistic. The present analysis suggests that, in order to reduce the prevalence of common mental disorders, we may also need to reduce a "quality gap"[95]. This gap has two components: providing treatments that meet the minimal standards of clinical practice guidelines, and targeting treatments optimally to those in greatest need. There may also be a "prevention gap", where resource allocation to reducing incidence through prevention has lagged efforts to reduce duration of disorders through treatment. However, if prevention is to have an impact, it needs to also be rigorously evidence based and implemented to a high standard, so that it does not end up having its own quality gap.

In order to properly evaluate the future impact of closing these gaps, nations need to use standardized measures of service provision and mental disorders over time. There would be merit in future work attempting to quantify changes in services and prevalence of mental disorders across countries using meta-analytic techniques, as have been applied in Canada[16,20].

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